

IMMEDIATE RELEASE

October 30, 1961

Office of the White House Press Secretary

THE WHITE HOUSE

At three thirty this morning, the Soviet Union detonated a very large nuclear device. Preliminary evidence indicates that its magnitude is on the order of 50 megatons. The explosion took place in the atmosphere. It will produce more radioactive fallout than any previous explosion.

The Soviet explosion was a political rather than a military act. The device exploded does not add in effectiveness against military targets to nuclear weapons now available both to the Soviet Union and the United States. It does not affect the basic balance of nuclear power. Any such weapon would be primarily a mass killer of people in war -- and the testing of this device primarily an incitement to fright and panic in the cold war.

In undertaking this test, the Soviet Union has deliberately overridden the expressed hope of the world as stated in the resolution adopted by the General Assembly of the United Nations on October 28. It has done so because it intends through this display to spread such fear across the world that peace-loving men will accept any Soviet demand. Fear is the oldest weapon in history. Throughout the life of mankind, it has been the resort of those who could not hope to prevail by reason and persuasion. It will be repelled today, as it has been repelled in the past -- not only by the steadfastness of free men but by the power of the arms which men will use to defend their freedom.

There is no mystery about producing a 50 megaton bomb. Nor is there any technical need for testing such a weapon at full-scale detonation in order to confirm the basic design. The United States Government considered this matter carefully several years ago and concluded that such weapons would not provide an essential military capability. The existing United States nuclear arsenal is superior in quantity and quality to that of any other nation. The United States today has ample military power to destroy any nation which would unleash thermonuclear war.

We have no wish ever to use this military power. We are ready, now as ever, to sign the test-ban treaty proposed at Geneva. We are ready, now as ever, to negotiate a treaty for general and complete disarmament. In the meantime, we will continue to take whatever measures are necessary to preserve the security of our country and of others who count on us.

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UNITED STATES
ATOMIC ENERGY COMMISSION
Washington 25, D. C.

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FOR IMMEDIATE RELEASE
(Tuesday, October 31, 1961)

NOTE TO EDITORS AND CORRESPONDENTS:

The attached statement is made available in response to inquiries from the news media, the public and the Congressional Joint Committee on Atomic Energy on the possible effects of nuclear detonations of very high yield. These data have been compiled by the Atomic Energy Commission with the assistance of the Department of Defense. The statement includes estimates of the possible effects of nuclear detonations of various yields up to 100 megatons. It should be stressed that these estimates are subject to many uncertainties. It is impossible to predict with any assurance of accuracy the effects of an actual test detonation of very high yield; this is particularly true if the weapon were to be detonated at a high altitude.

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ATTACHMENT

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ESTIMATED EFFECTS OF NUCLEAR
DETONATIONS OF VARIOUS MEGATON YIELDS

The following estimates of the possible effects of nuclear detonations of various megaton yields are subject to many uncertainties. It is impossible to predict with any assurance of accuracy the effects of actual detonations of very high yields, particularly if they were to occur at a high altitude.

A. BLAST EFFECTS

The blast wave of a 5 megaton surface detonation would be capable of causing severe damage to residential-type structures up to a distance of about 6 miles from ground zero (8 miles for a 10 megaton surface burst, 10 miles for a 20 megaton surface burst, 12 miles for a 30 megaton surface burst, 14 miles for a 50 megaton surface burst and 17 miles for a 100 megaton surface burst). A 5 megaton surface detonation would cause severe blast damage to reinforced concrete structures out to about 4 miles (5 miles for a 10 megaton, 6 miles for a 20 megaton, 7 miles for a 30 megaton, 8 miles for a 50 megaton and 10 miles for a 100 megaton). For an optimum air burst for air blast effects these ranges of blast damage could be increased by 30 to 40 percent.

A 5 megaton detonation above about 35 miles (44 miles for a 10 megaton, 50 miles for a 20 megaton, 60 miles for a 30 megaton, 75 miles for a 50 megaton, 100 miles for a 100 megaton) would cause insignificant blast damage on ground structures.

B. THERMAL EFFECTS

A 5 megaton surface detonation or an air burst below 50,000 feet on a clear day could cause first degree burns to exposed skin out to a slant range of about 25 miles (35 miles for a 10 megaton, 45 miles for a 20 megaton, 55 miles for a 30 megaton, 70 miles for a 50 megaton, and 100 miles for a 100 megaton) and second degree burns to exposed skin out to about 17 miles (25 miles for a 10 megaton, 32 miles for a 20 megaton, 40 miles for a 30 megaton, 50 miles for a 50 megaton and 70 miles for a 100 megaton). Paper and various similar materials would ignite at distances of about 20 miles (30 miles for a 10 megaton, 39 miles for a 20 megaton, 47 miles for a 30 megaton, 60 miles for a 50 megaton and 85 miles for a 100 megaton). Above about 50 miles the thermal effects on the earth's surface of a 20 megaton detonation would be negligible (60 miles for a 30 megaton, 75 miles for a 50 megaton and 110 miles for a 100 megaton). These distances would apply only on clear days and would be materially lessened when the thermal radiation is attenuated, such as on cloudy or hazy days.

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D. ELECTROMAGNETIC EFFECTS ON WORLD COMMUNICATIONS

Communication blackouts due to low altitude, high yield explosions are probably too localized to be of interest. If the cloud stabilizes at an altitude of about 25 miles, however, the possibility exists of producing observable effects on radio waves over distances of about 100 miles from air zero.

As a result of a 50 megaton detonation at an altitude of about 50 miles, large scale high frequency communications blackouts could be expected within a region of 2,500 miles radius and for a time span of the order of a day. At 30 miles altitude the radius of effect would be about 1,000 miles.

For 20 megaton and 30 megaton detonations at the same altitudes as above, the results would be similar but the radius of effect as well as the duration of blackouts would be somewhat less for the same altitudes of burst. Conversely, a 100 megaton detonation at the same altitudes as discussed for the 50 megaton burst would have a somewhat larger effects radius and a longer duration of communications blackout.

It is important to note that in order for a radio wave to be affected, the wave must pass through the disturbed region. Detonations in the Soviet Union of these yields at high altitudes would probably affect some North America to Europe communications. By increasing the altitude of detonation beyond 50 miles the radius of effects would be increased, but the duration of such communications blackouts should decrease. For a detonation of high yield at an altitude of 600 miles, the radius of the communications blackout effect may extend to 4,000 miles.

E. LOCAL FALLOUT

For a 20 megaton surface burst assuming 50% fission yield and 40 knot winds, local fallout of 450 roentgens would be expected at 360 miles downwind (higher exposures at lesser distances) for persons fully exposed for 96 hours following the start of fallout at that place. (450 roentgens would be expected at 415 miles downwind for a 30 MT detonation, at 500 miles downwind for a 50 MT detonation, and at 620 miles downwind for a 100 MT detonation.) It is expected that exposure to 450 roentgens would result in 50% deaths.

For detonations at altitudes such that the fireball does not approach near the ground there would be very little

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be expected at 415 miles downwind for a 30 MT detonation, at 500 miles downwind for a 50 MT detonation, and at 620 miles downwind for a 100 MT detonation.) It is expected that exposure to 450 roentgens would result in 50% deaths.

For detonations at altitudes such that the fireball does not approach near the ground there would be very little local fallout. The fireball for a 20 MT nuclear explosion would be about $3\frac{1}{2}$ miles in diameter. (About 4 miles for 30 MT, about 5 miles for 50 MT, and about 7 miles for 100 MT.)

F. WORLD-WIDE FALLOUT

Assuming that, (a) these detonations took place in the atmosphere so that the fireball does not approach the ground and, (b) the fission yield was 50% of the total yield, then a twenty or thirty megaton detonation would produce less fission products than the current USSR tests to date, (excluding, of course, the detonation of October 23 which is estimated to have been about 30 megatons), and the 100 megaton detonation might produce more than twice this amount.

The debris spread world-wide (as distinguished from local) from all past nuclear tests of all nations prior to resumption by Soviets of atmospheric tests on September 1, 1961, is estimated to have been the equivalent of 60 megatons of fission yield. Thus, for example, a 100 megaton detonation (50 megatons of fission) might produce almost as much world-wide radioactivity as all past tests to November 3, 1958.

The distribution of fallout from such high yield detonations is not known with certainty. However it is estimated that if they were fired in the lower atmosphere, then at most three fourths of the world-wide fallout might occur in the 30°-60° northern latitude zone. If the detonation took place at higher altitudes (greater than 20 miles) the amount of world-wide fallout of long lived radionuclides would be more equally partitioned between the northern and southern hemispheres.

A 5 MT detonation in the lower atmosphere fired north of 30 degrees North latitude might deposit about 4 millicuries of strontium-90 per square mile in the United States, and the one hundred megaton shot might scale up to about 75 millicuries of strontium-90 per square mile. There were about 70 millicuries of strontium-90 per square mile deposited in the United States before the current USSR tests.

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It is estimated that increasing the current level of strontium-90 in the United States by many fold would still result in less strontium-90 in the bones than permitted by radiation exposure guides now in effect for the general public for normal peacetime operations.

G. WATER WAVES

Water waves produced by high yield nuclear detonations could be of appreciable magnitude hundreds of miles from a deep underwater burst. A 50 megaton burst at a depth of 2,700 feet in deep water would generate wave heights from 20 to 50 feet at a range of 100 miles and 5 to 12 feet at 400 miles. A 100 megaton burst at about 4,000 feet in deep water would generate wave heights of about 28 to 70 feet at a range of 100 miles and 3 to 7 foot waves at 1,000 miles. For lesser burst depths the waves would be of lesser magnitude.

In all cases bottom profiles, in shallow water, and shoreline characteristics could greatly affect wave heights. The increase in the water level at the shoreline from a deep underwater high yield burst could be higher than that of the deep water waves at the same distance from the detonation.

An explosion of 50 MT at surface of ocean would produce waves of a height of about 1 to 10 feet at 100 miles and 3 inches to 2- $\frac{1}{2}$ feet at 400 miles. For an above surface explosion at 10,000 feet altitude it is predicted that the waves produced would be less than 1/2 of the surface case. For higher altitudes the waves produced would not be of significant height. All of the above figures are based on a depth of water in the area of generation of about 16,000 feet, for shallower depths the wave heights would be less. In general it is expected that the wave heights would vary as the square root of the yield.

H. RETINAL BURNS

If a person were looking at the point of burst from any of these detonations, then burns to a portion of his retina causing some visual loss might be received at ground distances up to 500 miles away on a clear day with no cloud cover for a burst occurring at a 30 miles altitude. A burst at 60 miles altitude might produce the same result at 700 miles. As the altitude of burst increases the severity of retinal damage decreases. However, the severity of retinal damage increases at night.

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For a 50 megaton burst in the lower atmosphere on a clear day, for example, retinal burns may be possible out to 250 miles (out to 210 miles for a 20 megaton burst, out to 290 miles for a 100 megaton burst.)

I. OTHER EFFECTS

From any of these detonations at high altitude (30 miles to 1,000 miles) widespread and spectacular aurorae could be visible at distances from ground zero to 1,000 miles and, for the larger yields, perhaps out to 2,000 miles for the higher altitudes bursts. These aurorae would not be harmful to human beings. The air glow in the ionosphere produced by the shock wave may also be visible for more than 1,000 miles.

For bursts in deep space, 50,000 miles or more, there would be one sharp pulse of light that might be noticeable only to a person looking directly at the burst. On the basis of current knowledge, it is not expected that there would be any other observable effects to the unaided eye at the earth's surface.

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UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

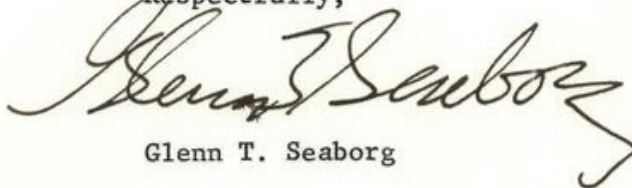
OFFICE OF THE CHAIRMAN

October 31, 1961

Dear Mr. President:

I understand that you have expressed an interest in having a copy of the transcript of my MEET THE PRESS interview on Sunday, October 29. I am pleased to enclose a copy for your information.

Respectfully,



Glenn T. Seaborg

Encl.

The President

The White House

Seaborg Transcript

RADIO TV REPOF 3, INC.

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UNITED STATES ATOMIC ENERGY COMMISSION

FOR:

PROGRAM	Meet the Press	STATION	WRC-TV and the NBC-TV Network
DATE	October 29, 1961 6:00 P.M.	CITY	Washington, D. C.

(FULL TEXT)

DR. GLENN T. SEABORG, CHAIRMAN OF THE ATOMIC ENERGY COMMISSION WAS SEEN ON THE TV SCREEN AS HE WAS INTERVIEWED BY THE 'MEET THE PRESS' PANEL.

NED BROOKS: "Our guest today is the Chairman of the Atomic Energy Commission, Dr. Glenn T. Seaborg, a Nobel prize-winning scientist. His job has long been considered one of the most important in the world, and now here is the first question from Lawrence E. Spivak, our permanent member of the 'Meet the Press' panel."

SPIVAK: "Dr. Seaborg, I know it hasn't been announced, but can you tell us--has a final decision been made yet as to whether or not the U. S. will test in the atmosphere?"

SEABORG: "The final decision has not been made yet, Mr. Spivak."

SPIVAK: "Can you tell us when it will be made?"

SEABORG: "No, I can't tell you when it will be made--if it will be made."

SPIVAK: "Can you tell us what the final decision will be based on?"

SEABORG: "Well, the final decision will be made by the

President, of course, and I suppose that he would want to base it in large part on the result of the analysis of the Soviet tests. I would also suppose that he would never take this decision to test in the atmosphere on the basis of political or terroristic considerations, such has been at least part of the reason for the Russian testing, but would base his decision entirely on the technical need for the information in the interests of our national security."

SPIVAK: "Dr. Seaborg, can you tell us whether you have recommended that we begin testing in the atmosphere?"

SEABORG: "No, I couldn't tell you that."

SPIVAK: "I believe at one time you said we can go a long way toward keeping pace with the Russians, even if they continue testing in the atmosphere, if we continue testing underground. Is that correct?"

SEABORG: "Yes, that's correct."

SPIVAK: "Do you still believe that?"

SEABORG: "Yes, I still believe that."

SPIVAK: "Then you really don't think it is necessary for us to test in the atmosphere in order to keep up with the Russians despite their present tests?"

SEABORG: "No, I said we could go a long way towards keeping pace with the Russians. If you raise the question whether we could keep up indefinitely, forever, with the Russians testing in the atmosphere and our testing underground, I wouldn't be so sure."

SPIVAK: "Well, what about these 25 or 26 tests that they've made so far? Can we test in the underground and still keep up with them, despite these tests?"

SEABORG: "Yes, I believe so."

SPIVAK: "You were reported as saying that you didn't think the Russians were ahead of us in nuclear development. Do you still feel that way despite these 25 tests?"

SEABORG: "Yes, I still feel that way."

SPIVAK: "Can you tell us what you are basing that on? We have been pretty wrong in estimating what the Russians have and haven't done in the past."

SEABORG: "Well, this is just a matter of judgment. It can't be precise, and I wouldn't be in a position to try to give you any of the data that would be available to me, upon which to base this general sort of a judgment."

SPIVAK: "Dr. Seaborg, the other day Ambassador Stevenson indicated that unless the Soviet Union agreed to a test ban treaty with effective controls, we would begin testing in the atmosphere. Do you know whether that has anything to do with official policy?"

SEABORG: "I think that Ambassador Stevenson said that the United States is obliged in self-protection to reserve the right to make preparations to test in the atmosphere, as well as underground."

SPIVAK: "Well, do you think that we would be ready to give up testing in the atmosphere if the Soviet Union at this time would agree to a treaty with controls and with inspection--would we be willing to forego testing in the atmosphere? Would you recommend that?"

SEABORG: "Well, I believe--if I understand your question correctly--if the Russians were willing at this time to sign the treaty that we have tabled at Geneva with inspection, that I would be in favor of our signing the treaty and foregoing testing in the atmosphere--yes, sir."

SPIVAK: "Would you be willing to forego, under those conditions, testing underground also?"

SEABORG: "Yes, on the basis of that treaty--if the Russians would sign the treaty that we have tabled at Geneva, I would be willing to do that."

BROOKS: "...Our other reporters today are Marquis Childs of the St. Louis Post Dispatch, John Finney of the New York Times, and Peter Hackes of NBC News. We'll continue the questions with Mr. Childs."

CHILDS: "Dr. Seaborg, Governor Rockefeller made a speech on Saturday in which he indicated, first of all, that the Russians

were ahead of us because of the nearly three years of uncontrolled, unmonitored test ban for that period. I didn't quite understand your answer to Mr. Spivak's question. Do you think we are ahead of the Soviet Union?"

SEABORG: "Well, I'm reluctant to speak in vague terms as to who's ahead. Those are very imprecise terms. It's very difficult to know what one man, as against another, means by those terms. I just have the feeling, understanding how imprecise such a statement is, that in the aggregate we are still ahead of the Russians with respect to our stockpile and our knowhow in atomic weapons."

CHILDS: "You would say with respect to the range of our weapons, their size, the weight capacity and all the rest of it?"

SEABORG: "In the aggregate, in a general consideration of the whole situation, and with the recognition of how necessarily imprecise such a consideration must be--I feel that we are still ahead of the Russians, yes, sir."

CHILDS: "This is an interesting word 'imprecise.' I'd like to ask you whether, in your opinion, anyone outside the field of the intense concentration and knowledge that you and others share can make these judgments?"

SEABORG: "Well, I think that there are very many people within our government that can make these judgments, if they are willing to do it within this context."

CHILDS: "But you have people outside the government who seem to want to bring it into politics. Do you think this is a dangerous tendency or not?"

SEABORG: "Well, no. I think that they certainly have every right to do that."

CHILDS: "I'd like to get you on a subject on which there has been a great deal of difference of opinion, and that is the effect of radioactive fallout. There seem to be very widely divided opinions but, as I understand it, on one subject almost all scientists are agreed, and that is on the genetic effect of fallout over the long term. And while there's a difference as to the degree of harm done, genetically, yet there is very widespread agreement on the harm that will be done. This 30 megaton explosion of the Soviet Union, and the 50 megaton one that seems about to

come--can you tell us what the harm--how great is the harm that will come out of these explosions?"

SEABORG: "No, I think that science is not yet able to answer that question precisely. There will be some genetic damage to future generations, but there is a wide range of difference of opinion among scientists as to how great this would be."

CHILDS: "Well, I'm sure you recall that when the United States exploded a 15 megaton device on the Bikini Proving Grounds in 1954--"

SEABORG: "Nineteen fifty-four, yes, sir."

CHILDS: "Then, because of the heavy radioactive level then, we postponed, as I recall it, for 30 days, later tests in that series. Now was that because of the great concentration of radioactive fallout in the atmosphere?"

SEABORG: "Well, this, of course, is considerably before my time. In my position of present responsibility, I don't recall the details. It would not, however--if I may relate it to your previous question with respect to genetic damage--I don't think it would be related to that."

CHILDS: "Well, if I understand you then, you are saying we really don't know, or we don't believe, that the Soviet explosions will do very much harm."

SEABORG: "With respect to genetic damage?"

CHILDS: "Any kind of damage."

SEABORG: "Well, I wouldn't say that it won't do any kind of damage. I'm only saying that the scientific basis for a judgment on this is lacking, and that there is a rather substantial difference of opinion among scientists as to what the extent of the damage would be."

BROOKS: "Mr. Finney."

FINNEY: "Dr. Seaborg, the Soviet Union has now detonated some 25 atmospheric explosions in the current test series. What do you believe are the objectives of this very intensive test series?"

SEABORG: "Oh, I just would state broadly their objectives are to improve their weapons arsenal, but, in addition, they apparently have non-technical objectives that I referred to earlier--the psychological and the political and the terroristic objectives. These seem to be clear."

FINNEY: "Well, on the terroristic point, are you suggesting that on the 50 megaton bomb that it's not really necessary to detonate such a device to develop it?"

SEABORG: "That is right, it is not necessary to detonate a full yield of 50 megatons in order to develop it. Tests at smaller yields, yields more in the range of their earlier tests, would be sufficient to develop a bomb of that magnitude or of higher magnitude."

FINNEY: "What military uses would there be for a 50 or a 100 megaton bomb, such as Mr. Khrushchev has said the Soviet Union is going to build?"

SEABORG: "Well, I don't think I'm enough of a military expert to even try to respond to that question."

FINNEY: "Well, let's take it in the reverse order then. If the Soviet Union develops a 50 or a 100 megaton bomb, do you feel that it will be incumbent upon the United States to develop similar weapons to have a counter-deterrent?"

SEABORG: "No, I don't, at least not necessarily."

FINNEY: "On this question of atmospheric testing, are we preparing Eniwetok for resumption of atmospheric tests?"

SEABORG: "I can't respond to that."

BROOKS: "Mr. Hackes."

HACKES: "Dr. Seaborg, on the same subject of resumption of-- possible resumption by the United States of atmospheric testing, if we resume what would be the first and foremost item of business, what would we be after, first and foremost?"

SEABORG: "On the assumption that we decided--the President decided to resume atmospheric testing? Well, there are some things that you can do by testing in the atmosphere that you can't do by testing underground. Similarly, there are some advantages

to testing underground, as compared to testing in the atmosphere. Among the advantages--the things that you can do by testing in the atmosphere that you can't do underground--are of course to test the effects that depend on the environment, on the atmosphere. So here we have the testing of the effects of weapons on weapons in the atmosphere. You obviously can't do that underground. You also can't test, or proof-test, very high yield weapons underground. There's some limit to the yield that you can test underground, and you also can't test complete weapons systems--that is, the combination of the missile and the warhead underground. Such tests would have to be performed in the atmosphere."

HACKES: "Would we be looking for something such as the so-called neutron bomb as the next step perhaps?"

SEABORG: "We would be trying to make all the improvements that are possible in our weapons."

HACKES: "Going back to Bikini, if I may for a minute, at the UN last week a Russian delegate pooh-poohed our complaint about the 30 megaton Russian blast last week by saying that the United States tested a 30 megaton bomb at Bikini. Just how big was our test there?"

SEABORG: "Well, the United States has not tested a 30 megaton bomb."

HACKES: "Anything larger than 15, can you tell us?"

SEABORG: "The largest test that has been announced is 15 megatons, and the--unfortunately--or actually, I guess I should say--the precise yields--the actual yields of the devices that have been tested is in the category of classified information."

HACKES: "Dr. Seaborg, one other question on the Russian tests. We have announced, I believe, or confirmed 25. Are there others that we have not announced and, if so, why?"

SEABORG: "Yes, there are."

HACKES: "Can you tell us generally how many more--"

SEABORG: "No, I can't tell you generally how many more. The reason was given by the President some weeks ago in his statement saying that it was in the interest of our national security that the tests that were announced were those where we knew clearly that a test had been performed, that the yield was

high enough so that we knew clearly, and that we wouldn't reveal anything about our--that we didn't want to reveal about our detection system, in announcing the test."

BROOKS: "Mr. Spivak."

SPIVAK: "Dr. Seaborg, is it our policy to announce all of our tests, and have we done so?"

BROOKS: "Again, the President, in his statement announcing that we were resuming testing, indicated that he would reserve the right to not announce all of our tests. So I will just refer you to that as our policy. I'm not in a position to tell you whether we've announced them all or not."

SPIVAK: "Well, Dr. Seaborg, when the Atomic Energy Commission announced a large Soviet nuclear blast on October 23, I believe you said, and I quote, 'it was possibly as large as 50 megatons but more probably on the order of 30 megatons.'"

SEABORG: "Yes."

SPIVAK: "Was there some special reason for this (precise?) figure?"

SEABORG: "No, this just relates--no, we were trying to be as precise as we could at that time, at an early time. This just relates to the difficulty in getting a precise determination, and in our minds was the possibility, which had come out from European sources, that this might indeed be the 50 megaton test that Khrushchev had said was going to come at the end of this month. In view of that and because we couldn't be sure that it was not, we left that as a possibility. We now think, however, that it definitely was not as high as 50 megatons, and that if Khrushchev is going to--if it is true that he intended to explode a 50 megaton bomb, then that explosion is yet to come."

SPIVAK: "Dr. Seaborg, there's been a great deal of speculation over the years as to whether or not the Russians have been cheating in underground tests and have been concealing them. Have you an opinion on that?"

SEABORG: "No, I don't. I just feel that I don't have any way of knowing."

SPIVAK: "Have our detecting devices been improved in three years of the moratorium?"

SEABORG: "Our detect--yes, I would say they have, yes, sir."

BROOKS: "Mr. Childs."

CHILDS: "Dr. Seaborg, I'd like to ask you about this problem of fallout in a possible nuclear war, and the question of shelters. The head of biological sciences for the Atomic Energy Commission, Dr. Wolfe, has said that in effect shelters are merely a means-- would be merely a means of delaying death, since you would come out to a largely uninhabitable desert if you survived in your shelter. Do you think the government should encourage the building of shelters--what is your opinion about this?"

SEABORG: "Well, it is--the President has announced it as a policy that we should try to provide shelters for as many of our citizens as possible at the earliest possible time, or that they should be provided in some manner. I believe that's a wise policy."

CHILDS: "You believe that the individual family shelter has some validity, do you?"

SEABORG: "Well, I'm not so sure that on a national basis it should all be done with individual family shelters. I think this is, as a matter of fact, being studied. I think that community shelters also have a place in the picture."

CHILDS: "There have been recommendations for a nationwide federal program; I think some costs have been as high as 10 to 15 billion dollars. Do you foresee such a program in the--?"

SEABORG: "Well, I don't know that I foresee such a program, but I think that intensive study should be given to the possibility for such a program, yes, sir."

BROOKS: "Mr. Finney."

FINNEY: "Dr. Seaborg, on this question of who is ahead now in nuclear arms, how much longer do you think that we can maintain our superiority in nuclear weapons if the Russians continue to test in the atmosphere and we continue under the limitations of underground testing?"

SEABORG: "I wouldn't want to try to estimate that time, Mr. Finney."

FINNEY: "Well, would you admit--would you say that eventually they would pull ahead of us, if this continued, this situation--"

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SEABORG: "I think that in the limit, that if we tested indefinitely underground, and if the Russians tested indefinitely in the atmosphere, they would pull ahead of us, particularly in the weapons effects areas, the area of the effect of weapons on weapons, which is eventually going to become a very important area."

FINNEY: "'Indefinitely' gives the impression--"

SEABORG: "In other words, in the anti-ICBM problem, as it's been termed."

FINNEY: "'Indefinitely' gives the impression of ten or 15 years. You're not talking in that framework or that period, are you?"

SEABORG: "I'm deliberately trying to not be very precise at this time."

FINNEY: "On this 50 megaton bomb, do you believe that the Soviet Union has a capability, either with its present missiles or bombers, to deliver such a weapon on American targets?"

SEABORG: "I don't know."

FINNEY: "Has this question been gone into?"

SEABORG: "I haven't any information on it, one way or the other."

FINNEY: "You suggested that there's no need to test a 50 megaton bomb--you could do it with a smaller weapon. I'd like to take this from the American standpoint. We have a warhead for an Atlas missile which has never been tested under actual firing conditions. Would you say that therefore--we've tested it under simulated conditions--would you say there is no real need to test this warhead--we know it will work?"

SEABORG: "Oh, this is a relative matter. It's just a matter of weighing that need against what it means to test."

FINNEY: "On this question of fallout, admitting the uncertainties now as to the effects of present fallout, would you agree that we just cannot go on contaminating the atmosphere this way before a real, clear and present danger is created for the health of this world?"

SEABORG: "Well, what do you mean by 'going on to contaminate the atmosphere this way'?"

FINNEY: "I'm thinking of the rate of testing we have now. The Soviet Union has done approximately a hundred megatons in one test series, which is almost equal to more than half of what had been exploded before--"

SEABORG: "Yes, there was a total of about 170 megatons before the Soviet resumption of testing, in the atmosphere."

FINNEY: "Well, how much longer can we go on testing at this rate before we do have a clear and present danger?"

SEABORG: "Well, we just get back to the question that was asked me earlier; we're just not sure how great the danger is, and this therefore makes it impossible for me to answer your question, for just the same reason."

BROOKS: "We have about two and a half minutes remaining. Mr. Hackes."

HACKES: "Continuing this same line, Dr. Seaborg, isn't it time--I'll admit there are some differences of opinion obviously--but isn't it time that somebody pulled together the--what seem to be the most impressive arguments and told the American public exactly what the standards are? For example, the Public Health Service says there will be fallout but it shouldn't cause any undue alarm. At what level does it cause undue alarm, and what should we do about it?"

SEABORG: "The Public Health Service did issue a document, making an attempt to do this, just a few days ago. I know that they're working as hard as they can to improve the information, and I believe there will be documents issued in the future, giving as much information as we have confidence in and that we can make available, and I should say the Public Health Service--"

HACKES: (interrupting) "One of your experts at the Argonne Laboratory, Dr. Bruce, says the Russians could explode a 50 megaton bomb every few days for a year before the radiation content of milk becomes dangerous."

SEABORG: "A 50 megaton bomb every few days for a year? That could be one or 200 50-megaton bombs per year? Oh, I think

that I would say that the radiation would--the radiation problem would be serious--"

HACKES: "The problem for the American public."

SEABORG: "Yes."

BROOKS: "Mr. Spivak--excuse me--"

SEABORG: "No, I was just going to say--but I believe that the information that is coming out through the Public Health Service, for example, will clearly give enough information for the public to draw conclusions on problems like that, on possibilities like that."

BROOKS: "Now, Mr. Spivak."

SPIVAK: "Dr. Seaborg, the moratorium with the Russians was on testing but not on production. Have we been able to improve our weapons during the period of the moratorium?"

SEABORG: "Yes, we have. We've spent the period digesting the data from the hardtack(?) series, and the computers have been busy, of course, and the physicists and theoreticians have been busy with the computations, so we certainly have been improving our weapons during the moratorium."

SPIVAK: "What about--"

SEABORG: "Very substantially."

SPIVAK: "--work on an anti-missile missile?"

BROOKS: "I'm afraid at this point we'll have to suspend our questions, and thank you very much, Dr. Seaborg, for being with us."

Text of the Prime Minister's Statement

in the House of Commons

October 31, 1961

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Naturally these massive tests of the Russians have led people to wonder what would be done about the resumption of tests by the West and I think that it would be right for me to state what is the British Government point of view on this matter as we see it to-day. I need not weary the House by trying to find new expressions with which to condemn the cynicism and brutality of what the Russians have done. I believe that even Communists and their sympathisers are just as puzzled and saddened.

On a matter such as this of such importance we have kept very close touch with the Government of the United States and although what I intend to say represents a statement of policy of the British Government, I feel sure that it would broadly commend itself—in my personal interchanges, I know that it would—to the American Government.

First of all, both we and our American friends are very conscious of two duties, both grave and to some extent, I fear, conflicting. We have a duty all of us to think of the dangers to the health of mankind, including children yet unborn, which may arise to a greater or lesser degree from the continuance of any large scale atmospheric nuclear tests. At the same time, we have a duty to maintain the balance of power in the world and to ensure that the deterrent still deters and that the security of free men is not overthrown because an aggressor suddenly becomes possessed of an overwhelming advantage.

Both of these duties place a very heavy moral responsibility on the Heads of Government of the nuclear powers.

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We did not test for three years. We did not start after 1948. I say therefore that these duties are to some extent conflicting, but they at least enable us to draw certain definite conclusions.

First of all, we have a duty to work for an agreement which will put an end to nuclear tests under proper control. No one can say that we did not honestly and honourably work for it, as the Honourable Member for South Ayrshire knows. Both the American Government and the British Government are ready at any time to resume talks, now suspended, for a nuclear test agreement, or to begin talks anywhere else which seem likely to lead to a similar result. That is our first conclusion on which we stand.

Secondly, we are clear that we will not make tests for terroristic or retaliatory purposes.

We will not make tests merely because the Russians have done so, terroristic or retaliatory, which I call a kind of political testing.

Thirdly, if tests must be conducted for good military or scientific reasons, if possible they will be made underground where there is no danger of pollution. I have specifically in mind the possible need to ensure the safety in peace and the effectiveness in operation of weapons either newly in service or under development or the study of new techniques, most probably of a defensive kind, whose production might revolutionise the nuclear balance.

We cannot risk putting the West in a position of permanent military inferiority. If it proves technically necessary that any such tests should take place in the atmosphere, they will of

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course be on a very minor scale, the smallest possible, pending the conclusion of an effective agreement for the abolition of all tests.

There is a great distinction between underground and atmospheric testing. We have kept off both for three years and underground tests themselves would be regrettable because they would mark even temporarily the breakdown of the policy to which so much patient service has been given by our negotiators, to which so much devoted effort has been attached and on which we base so much great hope. But they have no ill effects on the health of the world.

Atmospheric tests however are in a different category and I hope that it will not prove necessary for the Americans or ourselves to make atmospheric tests, however small. Certainly we have no plans for such tests in the near future. Nevertheless, I must be quite clear and frank with the House. If I were convinced that a particular atmospheric test was necessary in order to maintain the balance of the deterrent and to preserve freedom in the world, Britain would be bound either to co-operate in or support its conduct.

I would ask how this principle would be applied, and I think it must rest upon the sincere judgement of those who are charged with this heavy responsibility after doing their best to weigh the technical information at their disposal. I can assure the House that it is in this spirit that the British and American Governments intend to work.